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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/029,851	12/31/2001	Fumisato Goto	0020-4945P	5323

2292 7590 11/19/2003

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EXAMINER

CARR, DEBORAH D

ART UNIT	PAPER NUMBER
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1621

DATE MAILED: 11/19/2003

12

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

10/029,851

Applicant(s)

GOTO ET AL.

Examiner

Deborah D Carr

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 11 April 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) 6-9 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Allowable Subject Matter

1. Applicant is advised that the Notice of Allowance mailed is vacated. If the issue fee has already been paid, applicant may request a refund or request that the fee be credited to a deposit account. However, applicant may wait until the application is either found allowable or held abandoned. If allowed, upon receipt of a new Notice of Allowance, applicant may request that the previously submitted issue fee be applied. If abandoned, applicant may request refund or credit to a specified Deposit Account.

Election/Restrictions

2. Claims 6-9 withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made without traverse in Paper No. 8.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. Claims 1-5 rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuto et al (EP-1061120) in view of Perry's Chemical Engineers' Handbook 7th ed., (copyright 1997, McGraw-Hill) pages 7-20, 7-25 to 7-28, 23-45.

Tsuto discloses a process for producing fatty acid alkyl esters (FAE), useful as a diesel fuel, through the transesterification of triglycerides contained in fats and oils with an alcohol in supercritical state. See the bridging paragraph of columns 2-3. The fats and oils desirably include spent and waste edible oils to promote the recycling of resource. See column 1, lines 13-15 and column 3, lines 43-45. The alcohol is monohydric having 1-5 carbons per molecule. Columns 3, lines 45-51. Methanol is the most preferred because of its low cost and it can be recovered more easily. Column 3, lines 45-53

However, Tsuto do not particularly exemplify the transesterification process wherein the reaction mixture containing unreacted and/or intermediate products is recycled to the reactor.

However, Tsuto et al. disclose the economic benefits and the desirability of using spent oils to promote recycling of resource. Column 3, lines 40-45 in particular. Furthermore, the reference discloses the separation of the unreacted reactants such as methanol for recovery and the separation of the final product FAE from the unreacted reactants in oil layer, when the oil layer contains the raw materials oil. See column 6, lines 5-15. Additionally, the reference teaches the optimization to improve equilibrium reaction rates by increasing the ratio of the reactants to desired products by removing glycerin product from the reaction mixture. See bridging paragraph of the columns 5-6.

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It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to prepare FAE comprising reacting fats and oils with a monohydric alcohol in supercritical state, wherein a reaction mixture containing unreacted reactants and/or intermediate products is recycled to the reactor, because Tsuto et al. teach the process of making FAE through the recycling of the waste fats and oils by having the fats and oil react with monohydric alcohol in super critical state, and since the reference suggests the beneficial economics of using spent oil reactants to promote recycling of resources.

Additionally, the process would have been obvious because the reference teaches the benefit of improving equilibrium reaction via increasing the ratio of the reactants to product, by product removal, wherein one of ordinary skill in the art would find it as an equivalent and therefore obvious to further add the reactants to the reaction mixture in the optimization process to shift the equilibrium toward formation of products with the reasonable expectation of equivalent improvement. Further, the reference teaches the separation of the final product from the oil layer containing unreacted reactants. See column 4, lines 50+ and column 6, lines 5-15.

If Tsuto et al is deemed insufficient to render obvious the recycling aspect by itself, the claimed process is nevertheless obvious over the teachings of Tsuto et al. in view of Chem. Eng. Handbook. The handbook teaches that all reactor modes can sometimes be advantageously operated with recycling of part of the product or intermediate streams, and that reversible reactions, recycling is warranted when improvement in conversion can be

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realized by removing some of the product in a separator and returning only unconverted material. See page 7-20 first column, "Recycle and Separation Modes."

Therefore, the recycling via removing some the product in s separator and returning only unconverted materials of the Handbook in the process taught by Tsuto et al. would have been obvious since Tsuto et al. discloses removing some of the product from the reaction mixture in the process to improving the equilibrium reaction rate, with the reasonable expectation of optimizing the reaction rate for the final FAE product and with the added benefit of recycling the wasted oil containing unreacted reactants to promote recycling of the resource as suggested by the teachings of the references.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Deborah D Carr whose telephone number is 703-308-4627.

The examiner can normally be reached on Monday-Friday 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann Richter can be reached on 703-308-4532. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1235.

ddc



DEBORAH D. CARR
PRIMARY EXAMINER

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